Acetaminophen Medication Preparation

Paramedic – Standing Order

Assessment / Indications
This medication may be utilized for febrile pediatrics (≥ 100.4 °F) and / or pediatric patients who have had a febrile seizure.

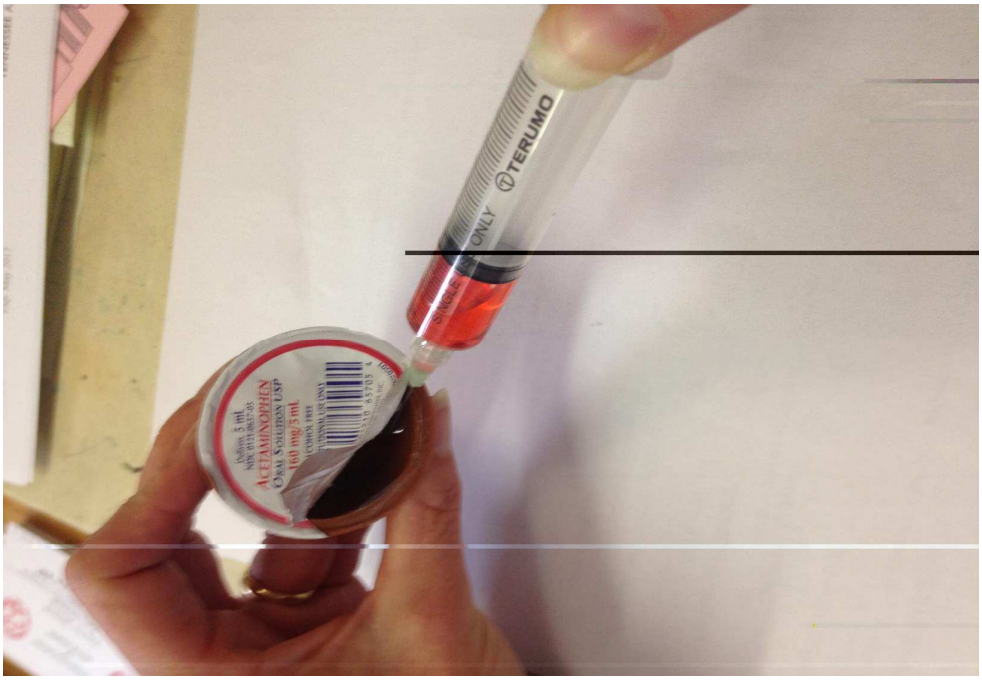
Contraindications
- Hepatic disease
- Patient is unconscious
- Patient is unable to swallow or maintain their own airway

Medication Packaging
- 160 mg / 5 ml per unit
- 32 mg / ml

Paramedic – Standing Order
15 mg / kg up to a maximum dose of 500 mg
Cannot repeat, it is a onetime dose

Procedure:
1. Determine the amount of drug to be given.
2. Selection the smallest appropriate syringe.
3. Utilize the syringe or attach an 18g blunt tip catheter to the syringe.
4. Partially remove the foil top from the medication container.
5. While tilting the medication container, slowly draw up the medication.
6. Repeat the previous step to obtain the desired amount of medication.
7. You may have to use a second syringe if the dose is higher than 320 mg.
8. Remove the blunt tip catheter (if used) from the syringe.
9. Slowly administer the medication to the patient via PO route; ensuring that you do not give the medication at a rate faster than the patient can tolerate.

Note
If the calculated dose is unable to be drawn up accurately, round down to the nearest dose amount that can be accurately drawn up and administered.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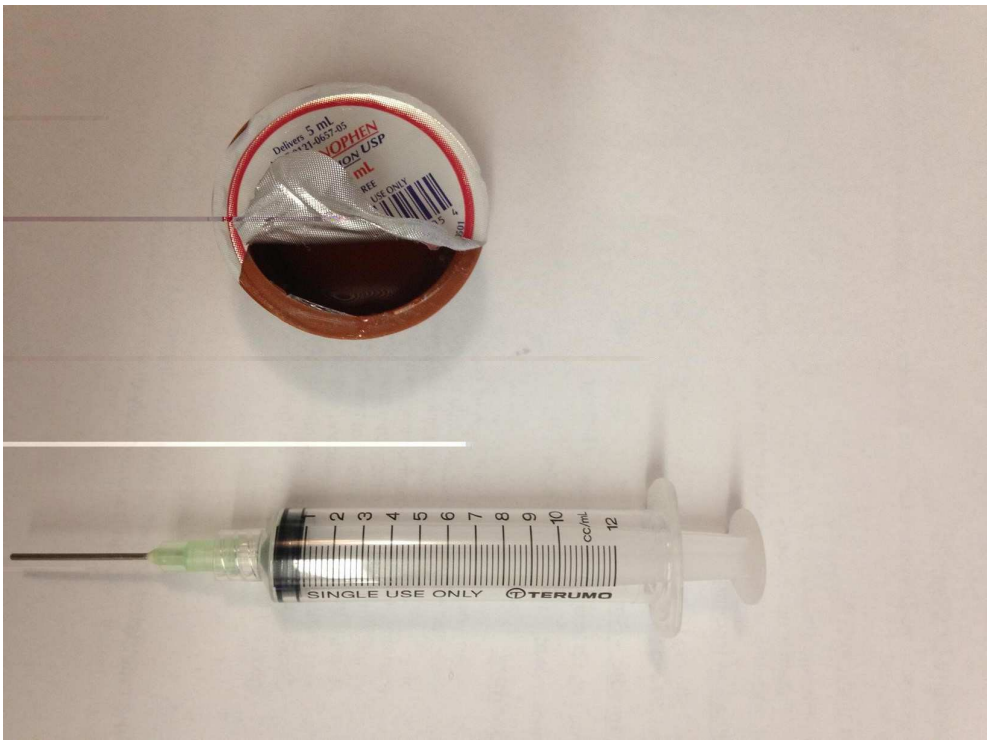

SINGLE USE ONLY
TERUMO

Amiodarone Mixture (Adult)

Paramedic – Standing Order

Assessment/Indications
This medication may be utilized for cardiac emergencies as indicated.

Procedure:

Main Line Prep

1. Obtain and setup equipment for vascular access, set up according to manufacturer recommendations. The IV tubing should always be 10 drop/ml.
2. Obtain Vascular access and ensure no side effects and the rate is set at TKO (unless otherwise indicated).

Secondary Line Prep

1. Prepare a 50 ml bag of an IV solution
2. Prepare the Amiodarone with sterile practices
3. Clean the injection port on the IV solution
4. Invert the IV bag and inject 150 mg (3 ml) of Amiodarone into the IV solution.
5. Insert the Amiodarone into the medication port of the IV solution
6. Gently rotate the IV bag to mix medication
7. Attach 10 drop IV tubing to the 50 ml bag
8. Attach a gravity flow controller to the IV tubing
9. Open the gravity flow controller package extension set, remove the protective cover. Set the volume selector to the 300 ml/hr and ensure the clamp is open.
10. Bleed all air from the IV tubing and the gravity control extension set. Once all air is bled from the tubing clamp the IV tubing.
    Note: The volume selector is very hard to move for the first time, do not be afraid to use slight force to open the volume selector. Invert the gravity flow controller and "tap" to dislodge any trapped air while flushing the tubing.
11. Clean the medication port on the main line with alcohol.
12. Attach the secondary line with the gravity flow controller extension set to your main line 10 drop tubing
13. Clamp/turn off the main IV line, make sure main secondary line (drip) is higher than main IV line.
14. Ensure the gravity flow controller is set to 300 ml/hr and open your secondary IV clamp.
15. Unclamp all clamps on the secondary line.
16. The infusion should be completed in about ten (10) minutes.
17. Once the 50 ml bag is empty let the medication pass by the gravity flow controller since there is a significant amount of medication in the IV tubing (be extremely careful and monitor, do not allow any air to enter into the circulatory system).
18. Clamp the secondary IV line off and remove it from the main IV line, discard accordingly.
19. Open main line to an appropriate rate

NOTE:
These calculations are based on the 20 gtts/ml gravity flow controller.

Amiodarone Mixture (Pediatric)

Paramedic – Standing Order

Assessment/Indications
This medication may be utilized for cardiac emergencies as indicated.

Procedure:

Main Line Prep

1. Obtain and setup equipment for vascular access, set up according to manufacturer recommendations. The IV tubing should always be 10 drop/ml.
2. Obtain Vascular access and ensure no side effects and the rate is set at TKO (unless otherwise indicated).

Secondary Line Prep

1. Prepare a ***100 ml bag*** of an IV solution
2. Invert the IV bag, clean the injection port with alcohol and inject 150 mg of Amiodarone.
3. Gently rotate the IV bag to mix medication.
4. Attach a Buretrol set to the 100 ml bag.
5. Place the amount of **ML** recommended in the Dose Medic reference manual in the Burertrol chamber.
6. Close the regulator and chamber to not allow any more medication into the Buretrol set.
7. Open the gravity flow controller package extension set, remove the protective cover. Set the volume selector to the open and ensure the clamp is open.
8. Bleed all air from the IV tubing and the gravity control extension set. Once all air is bled from the tubing clamp the IV tubing.
   Note: The volume selector is very hard to move for the first time, do not be afraid to use slight force to open the volume selector. Invert the gravity flow controller and "tap" to dislodge any trapped air while flushing the tubing.
9. Clean the medication port on the main line with alcohol.
10. Attach the secondary line with the gravity flow controller extension set to your main line tubing
11. Clamp/turn off the main IV line, make sure secondary line (drip) is higher than main line.
12. Ensure the gravity flow controller is set to the desired amount (see below for calculation) and open your secondary IV clamp.
13. The infusion should be completed in thirty (30) minutes.
14. Once the Buretrol is empty let the medication pass by the gravity flow controller since there is a significant amount of medication in the IV tubing (be extremely careful and monitor, do not allow any air to enter into the circulatory system).
15. Clamp the secondary IV line off and remove it from the main IV line, discard accordingly.
16. Open main line to an appropriate rate

NOTE:
Calculations are based on the 20 gtts/ml gravity flow controller. The rate is based on 30 minute infusion.

Calculations
Volume (100) divided by time (hour) = ml per hr on controller

10 kg pt. – 33.3 (ml) ***DIVIDED*** by 0.5 (hr) = 67 ml/hr
30 kg pt. – 100 (ml) ***DIVIDED*** by 0.5 (hr) = 200 ml/hr

Beck Airway Airflow Monitor (BAAM)

Paramedic – Standing Order

Description
The BAAM is a plastic cap that when placed on an endotracheal tube will be activated by the patient's respirations and magnify airway airflow sounds facilitating blind nasotracheal intubation.

Assessment/Indications
1. Assist nasotracheal intubation placement.
2. Confirmation of endotracheal tube placement in a patient who is spontaneously breathing.

Precautions
A BAAM can only be used in a patient who has spontaneous respirations with a tidal volume strong enough to create airflow through the device. The BAAM will only confirm placement in the bronchial tree, it will not determine if the tube tip is placed in the carina or in a bronchial mainstem. An unobstructed endotracheal tube with its tip located in the pharynx can produce the whistle sound. It is important to know the length of the endotracheal tube within the patient. Individual situations will determine the need for pre-oxygenation and/or sedation.

Technique
1. Connect the BAAM to a 15 mm endotracheal connector, lubricate the endotracheal tube.
2. Place the patient in the sniffing position (if no trauma is involved)
3. Insert the endotracheal tube with the BAAM attached into the nostril to the posterior, when the tube is advanced into the posterior nasopharynx, the patient's breathing will activate the BAAM and a whistling sound will be produced with inhalation and exhalation.
4. The tube is then advanced into the larynx and trachea which will increase the intensity and pitch of whistling sound.
5. Deviation out of the airflow tract, primarily into the esophagus will result in immediate diminution or loss of the whistle sound and indicate the need to withdraw until the whistle sound is audible and redirect the tip of the tube (to maintain whistling) the following steps may prove helpful.
    1. Laterally by twisting the tube, or
    2. Anteriorly by extending the neck or
    3. Posteriorly by lifting the jaw and extending the neck (non trauma patients)
6. **Once tube placement has been confirmed, the BAAM should be removed, and an proper size BVM should be attached**. Since the aperture diameter is only 4 mm, it precludes long term ventilation through the device.
7. Confirm placement and document results, refer to the **"Basic Assessment and Management" A - 3 page 5**

Special Notes
The BAAM is designed for single use only and should be disposed of following use to prevent cross infection in patients. The BAAM will whistle if the ET tube is in the right mainstem or the pharynx, additional confirmation must be done to confirm placement at the carina (3 minimum).

Bleeding Control

EMR, EMT, AEMT & Paramedic – Standing Order

Assessment/Indications

Active bleeding should be treated by the EMS provider. Depending on the severity of the bleeding dictates the treatment that should be administered. In recent years the tourniquet and hemostatic agents have proven to save lives in major bleeding in the US military. Aggressive treatment must be applied to severe uncontrolled bleeding.

Basic Wound Care

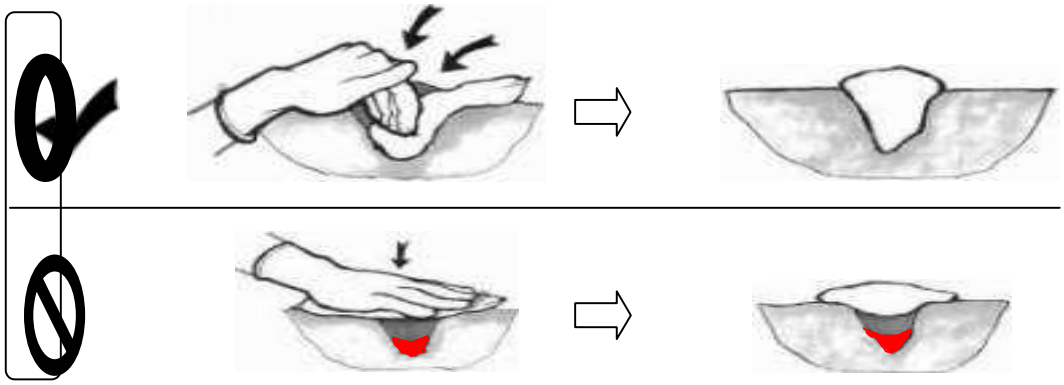
- Direct pressure and elevation will stop most bleeding.
- Once bleeding has been controlled a sterile dressing should be applied to minimize the potential for infection. Secure the dressing with a bandage.
- Always check Pulse, Motor, and Sensation (PMS) after bandaging.

Hemostatic Agents

These agents are first priority for wounds in the groin and axilla to stop bleeding. Remember they may be used in conjunction with a tourniquet.

Procedure

- Remove clothing around the wound
- Remove excess blood
- Locate the source of active bleeding
- Pack the hemostatic agent tightly into the wound and onto the source of bleeding
- More than one may be needed, if you do not have any more hemostatic agent use kerlix to continue packing (over the hemostatic agent)
- **Apply pressure until bleeding stops**
- Hold pressure for **AT LEAST 3 MINUTES**
- Reassess
- Leave agent in place
- Wrap effectively with a dressing
- DO NOT REMOVE the hemostatic agent!



Tourniquets
Tourniquets should be utilized on extremities that have severe uncontrolled bleeding.

Procedure
- Apply the tourniquet per manufacturer guidelines
- Pull the self-adhering band tight and secure it back to the Velcro (DO NOT past the windless clip)
- Twist the rod until the bleeding has stopped (THIS WILL BE PAINFUL)
- Secure the rod in the windless clip
- Ensure hemorrhage has been controlled
- Adhere the self-adhering band over the rod (do not cover the Velcro on the windless clip) and around the extremity as far as it will go
- Secure the rod and band with the windless strap
- Document the time on the windless strap or the patient

Special Notes
- A 2nd tourniquet may be needed (apply above the first if needed)
- Do NOT put directly over the knee or elbow
- Do NOT place over a cargo pocket or bulky items
- Do NOT use for minimal bleeding
- Do NOT loosen or remove once applied
- Notify receiving facility ASAP that you have a tourniquet in place

Pitfalls
- Not using one when indicated
- Placing it to proximally
- Not tight enough, it should eliminate the distal pulse
- Waiting too long to apply

Combat Application Tourniquet

C-A-T®

Featuring RED-TIP Technology™

Composite Resources, Inc
485 Lakeshore Parkway
Rock Hill, SC 29730

EC REP

Mdi Europa GmbH
Langenhagener Straße 71
D-30855 Langenhagener

RAW-23140 REV 01

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U.S. Patent No. 7,842,067; 7,892,253;
Canada Patent No. 2,569,550;
EU Patent No. 1,753,344;
Germany Patent No. 602005031888.7;
Israel Patent No. 179769;
Other Patents Pending
Licensed and Manufactured by:
Composite Resources, Inc. 803.366.9700
485 Lakeshore Parkway, Rock Hill, SC 29730

Tactical Black

PN 30-0001

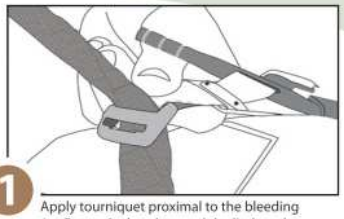
NSN 6515-01-521-7976

LIMITATION OF LIABILITY:
Composite Resources, Inc., its employees, agents, contractors, suppliers, and distributors shall assume no liability for injury or damages arising from the application and use of the Combat Application Tourniquet® (C-A-T®). The user assumes all risk of liability. The C-A-T® should only be used as directed by user's military service component guidelines, EMS authority, or under the supervision of a physician.

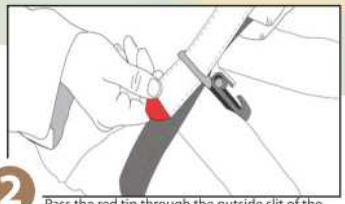
STANDARD USE GUIDELINES
For the military: In a Care under Fire situation, treatment normally consists of using a tourniquet IMMEDIATELY to stop major bleeding of the extremities. In a Tactical Field Care situation, the Trained and Authorized Rescuer will perform all treatment necessary, using a tourniquet as a LAST RESORT and should ONLY be applied when bleeding cannot be stopped and the situation is life threatening.

Combat Application Tourniquet®

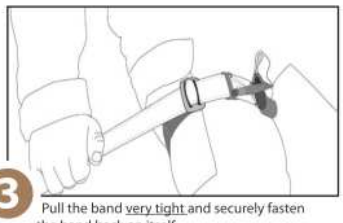
Instructions for Use: Two-handed Application *



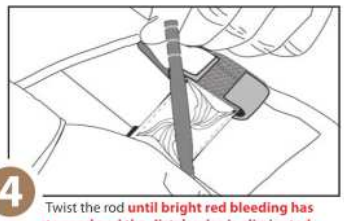
1. Apply tourniquet proximal to the bleeding site. Route the band around the limb and pass the red tip through the inside slit of the buckle.



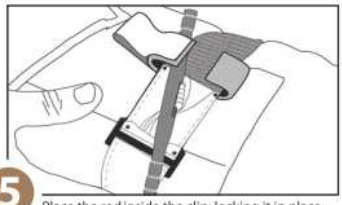
2. Pass the red tip through the outside slit of the buckle. The buckle will lock the band in place.



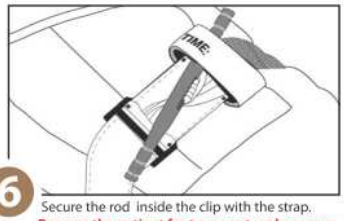
3. Pull the band very tight and securely fasten the band back on itself.



4. Twist the rod **until bright red bleeding has stopped and the distal pulse is eliminated.**



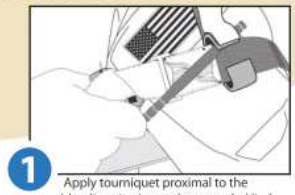
5. Place the rod inside the clip; locking it in place. **Check for bleeding and distal pulse.** If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first and reassess.



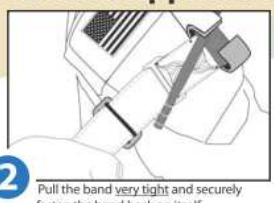
6. Secure the rod inside the clip with the strap. **Prepare the patient for transport and reassess.** Record the time of application.

*** Always store the C-A-T® in its one-handed configuration**

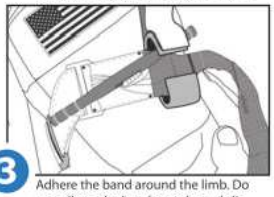
Instructions for Use: One-handed Application



1. Apply tourniquet proximal to the bleeding site. Insert the wounded limb through the loop formed by the band.

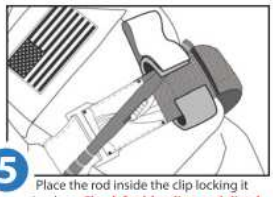


2. Pull the band very tight and securely fasten the band back on itself.

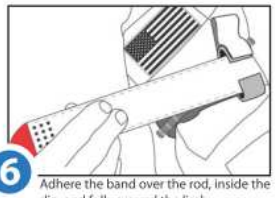


3. Adhere the band around the limb. Do not adhere the band past the rod clip.

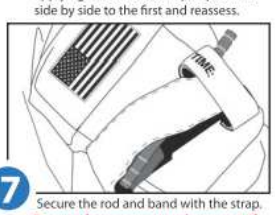
4. Twist the rod until **bright red bleeding has stopped and the distal pulse is eliminated.**



5. Place the rod inside the clip locking it in place. **Check for bleeding and distal pulse.** If bleeding is not controlled, consider additional tightening or applying a second tourniquet proximal side by side to the first and reassess.



6. Adhere the band over the rod, inside the clip, and fully around the limb.

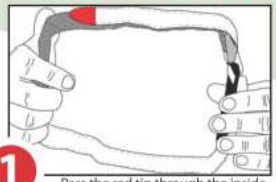


7. Secure the rod and band with the strap. **Prepare for transport and reassess. If possible, record time of application on white strap.**

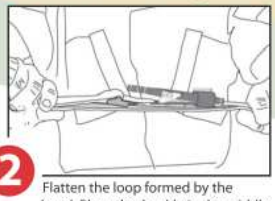
*** Always store the C-A-T® in its one-handed configuration**

Storing in the One-Handed Configuration

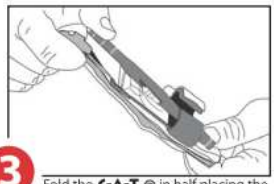
To prepare for use, store the C-A-T® in its one-handed configuration



1. Pass the red tip through the inside slit in the buckle. Pull 6" of band through, fold it back and adhere the band to itself.



2. Flatten the loop formed by the band. Place the buckle in the middle of the flattened band.



3. Fold the C-A-T® in half placing the buckle at one end. The C-A-T® is now ready to be placed in your medical kit.

Exclusive distribution in the U.S. by:
North American Rescue®, LLC 1-888-689-6277
www.NARescue.com info@NARescue.com

Tactical Black
NSN 6515-01-521-7976

EMS Orange
NSN 6515-01-612-7129

Trainer Blue
NSN 6910-01-560-2972

C-A-T®

Endotracheal Tube Introducer (Bougie)

Paramedic – Standing Order

Clinical Indications:
- Patients meet clinical indications for oral intubation
- Initial intubation attempt(s) unsuccessful
- Predicted difficult intubation

Contraindications:
- Three (3) attempts at orotracheal intubation (utilize failed airway protocol)
- Age less than eight (8)
- ETT size less than 6.5 mm

Procedure:
1. Prepare, position and oxygenate the patient with 100% oxygen;
2. Select proper ET tube without a stylet, test cuff and prepare suction equipment;
3. Lubricate the distal end and cuff of the endotracheal tube (ETT) and the distal 1/2 of the Endotracheal Tube Introducer (Bougie) (note: Failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT);
4. Using laryngoscopic techniques, visualize the vocal cords if possible using Sellick's/BURP as needed;
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized;
6. Once inserted, gently advance the Bougie until you meet resistance or "hold-up" (if you do not meet resistance you have a probable esophageal intubation and insertion should be re-attempted or the failed airway protocol implemented as indicated);
7. Withdraw the Bougie ONLY to a depth sufficient to allow loading of the ETT while maintaining proximal control of the Bougie;
8. Gently advance the Bougie and loaded ET tube until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie;
9. While maintaining a firm grasp on the proximal Bougie, introduce the ET tube over the Bougie passing the tube to its appropriate depth;
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT (this will require an assistant to maintain the position of the bougie and, if so desired, advance the ETT);
11. Once the ETT is correctly placed, hold the ET tube securely and remove the Bougie; Confirm tracheal placement according to the intubation protocol, inflate the cuff with 3 to 10 cc of air, auscultate for equal breath sounds and reposition accordingly;
12. When final position is determined secure the ET tube, reassess breath sounds, apply end tidal CO2 monitor, and record and monitor readings to assure continued tracheal intubation.

Note:
The Endotracheal Tube Inducer (ETTI) employed may not a Bougie but the terminology is used here to avoid confusion with the similar abbreviation of endotracheal tube (ETT).

Capnography

Paramedic – Standing Order

Assessment/Indications
Capnography shall be used when available with all endotracheal intubation, nasotracheal intubation, or King LT airways.

End Tidal C02 Detectors (Waveform)

Procedure
1. Go to the manual mode.
2. On the far left soft key, press Param, hit select until the EtC02 is highlighted then press enter. Press enable the EtCO2 and allow it to warm up (may take up to one (1) minute).
3. Insert the airway adaptor into ETCO2 cable. Be sure it is aligned correctly. Some adaptors only line up one (1) way (do not force it).
4. Press return to go back to the main screen.
5. Press the Wave 2 soft key to display EtCO2 waveform.
6. Attach the capnography sensor to endotracheal tube, or supraglottic airway. This can still be done while the unit is warming up.
7. Push the wave 2 soft key on the Zoll monitor/defibrillator to display the ETCO2 waveform. You can still get a waveform during the warmup cycle.
8. Monitor ETCO2 level and waveform changes.
9. Capnography shall remain in place and be monitored throughout the pre-hospital care and transport.
10. Any loss of ETCO2 detection or waveform may indicate an airway problem and should be treated accordingly.
11. Normal ETCO2 reading should be 35 - 45 mmHg.
12. The capnography should be monitored as procedures are performed to verify or correct the airway problem.
13. Document the procedure and results in the Patient Care Report (PCR).

End Tidal C02 Detectors (Color Metric Style)

These devices should be used as initial confirmation when a patient is intubated orally, nasally, or a supraglottic airway (such as the King LT) is utilized.

Refer to Reference section **"End Tidal CO2 User Manual" J – 13 (Adult) & J – 14 (Pediatric)**

Cardioversion

Paramedic – Standing Order

Assessment/Indications

Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia,
Or ventricular tachycardia with a pulse)

Procedure

1. Attached the four (4) lead EKG cables.
2. Apply correct size multifunction pads to patient's bare chest, ensure they are pushed firmly against the chest. If the chest is hairy a razor may be utilized to prep the area.
3. Consider the use of pain or sedating medications (if patient condition allows) refer to the **"Cardioversion and Pacing Sedation" Protocol G - 2**
4. Set monitor/defibrillator to synchronized cardioversion "sync" mode using the soft keys on the front keypad.
5. Set energy selection to the appropriate setting; see **"Electrical Therapy Guidelines" Procedure I - 15**
   a. Multifunction "combo" pads - use the energy selector on the monitor/defibrillator
6. Make certain all personnel are clear of patient.
7. Prior to attempting synchronized cardioversion ensure that the EKG signal quality is good and that "sync" marks are displayed above each QRS complex.
8. Deliver shock
   a. Multifunction "combo" pads - Press and hold the shock button on the monitor/defibrillator to cardiovert. NOTE: It may take the monitor/defibrillator several cardiac cycles to "synchronize", so there may a delay between activating the cardioversion and the actual delivery of energy. Do not release the shock button until the shock has been delivered.
9. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia or ventricular fibrillation, refer to the "**Defibrillation - Manual" Procedure I - 11**
10. If the patient's condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.
11. Repeat until efforts succeed or rhythm changes that does not require synchronized cardioversion.
12. Document procedure, response, and time in the patient care report (PCR).

Cardizem (Using the Add Vantage System)

Paramedic – Standing Order

Assessment/Indications
This medication may be utilized for cardiac emergencies as indicated.

Procedure:

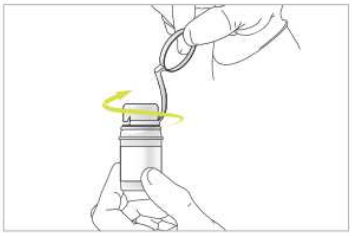
Main Line Prep

1. Obtain and setup equipment for vascular access, set up according to manufacturer recommendations. The IV tubing should always be 10 drop/ml.
2. Obtain Vascular access and ensure no side effects and the rate is set at TKO (unless otherwise indicated).

Secondary Line Prep

Gather the Add Vantage bag, Cardizem, Buretrol set, and gravity flow device.

1. Assemble - Use Aseptic Technique



Swing the pull ring over the top of the vial and pull down far enough to start the opening. Then pull straight up to remove the cap. Avoid touching the rubber stopper and vial threads.

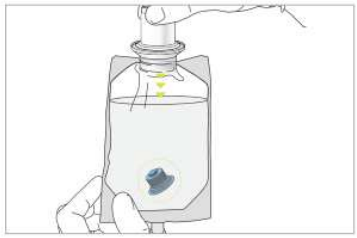
Hold diluent container and gently grasp the tab on the pull ring. Pull up to break the tie membrane. Pull back to remove the cover. Avoid touching the inside of the vial port.

Screw the vial into the vial port until it will go no further. Recheck the vial to assure that it is tight. Label appropriately.

2. Activate - Pull Plug/Stopper to Mix Drug with Diluent

Hold the vial as shown. Push the drug vial down into container and grasp the inner cap of the vial through the walls of the container.

Pull the inner plug from the drug vial: allow drug to fall into diluent container for fast mixing. Do not force stopper by pushing on one side of inner cap at a time.



Verify that the plug and rubber stopper have been removed from the vial. The floating stopper is an indication that the system has been activated.

If the rubber stopper is not removed from the vial and the medication is not release on the first attempt, the inner cap may be manipulated back into the rubber stopper without removing the drug vial from the diluent container. After repositioning the inner cap, repeat the “Activate” step.

3. Mix and Administer - Within Specified Time
Mix container contents thoroughly to assure complete dissolution. Look through bottom of vial to verify complete mixing. Check for leaks by squeezing container firmly. If leaks are found, discard unit.
Pull up hanger on the vial.
Remove the white administration port cover and spike (pierce) the container with the piercing pin. Administer within the specified time.

1. Attach a Buretrol set to the 100 ml bag.
2. Place the amount of **ML** recommended in the Dose Medic reference manual in the Buretrol chamber. 25 mg is the MAX dose
3. Close the chamber to not allow any more medication into the Buretrol set.
4. Open the gravity flow controller package extension set, remove the protective cover. Set the volume selector to the open and ensure the clamp is open.
5. Bleed all air from the IV tubing and the gravity control extension set. Once all air is bled from the tubing clamp the IV tubing.
   Note: The volume selector is very hard to move for the first time, do not be afraid to use slight force to open the volume selector. Invert the gravity flow controller and “tap” to dislodge any trapped air while flushing the tubing.
6. Clean the medication port on the main line with alcohol.
7. Attach the secondary line with the gravity flow controller extension set to your main line tubing
8. Clamp/turn off the main IV line, make sure secondary line (drip) is higher than main line.
9. Ensure the gravity flow controller is set to the desired amount (see below for calculation) and open your secondary IV clamp.
10. The infusion should be completed in ten (10) minutes (*0.16 is used in your calculation below*).
11. Once the Buretrol is empty let the medication pass by the gravity flow controller since there is a significant amount of medication in the IV tubing (be extremely careful and monitor, do not allow any air to enter into the circulatory system).
12. Clamp the secondary IV line off and remove it from the main IV line, discard accordingly.
13. Open main line to an appropriate rate

Calculation:
Volume (ml) divided by 0.16 (time) = infusion rate (ml/hr) on the gravity flow controller

NOTE:
These calculations are based on the 20 gtts/ml gravity flow controller.

Central Venous Access (Existing)

Paramedic – Standing Order

Assessment / Indications

- Access of an existing venous catheter (dual or triple lumen) for medication or fluid administration.
- Central venous access in a patient in cardiac arrest.

Procedure

1. Clean the port of the catheter with an alcohol wipe. Clean the port extremely well!
2. If there is no resistance, no evidence of infiltration (e.g., no subcutaneous collection of fluid), and no pain experienced by the patient, then proceed to step 4. If there is resistance, evidence of infiltration, pain experienced by the patient, or any concern that the catheter may be clotted or dislodged, do not use the catheter.
3. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
4. Record procedure, any complications, and fluids/medications administered in the Patient Care Report (PCR).

Special Notes

- Only access these central venous access lines if the patient needs it for critical medications
- ***DO NOT*** access these lines as precautionary access
- You MUST have received training to be able to utilize central venous access

Chest Decompression Kits

Paramedic – Standing Order

Assessment/Indications:
Patient with hypotension, clinical signs of shock, and at least one of the following signs.

- Jugular vein distention.
- Tracheal deviation away from the side of injury (often a late sign).
- Absent of decreased breath sounds on the affected side.
- Hyper-resonance to percussion on the affected side.
- Increased resistance when ventilating a patient.
- Decreased level of consciousness
- Rapid, shallow respirations
- Weak, thready pulses, possibly no radial pulses

Cook Pneumothorax Kit

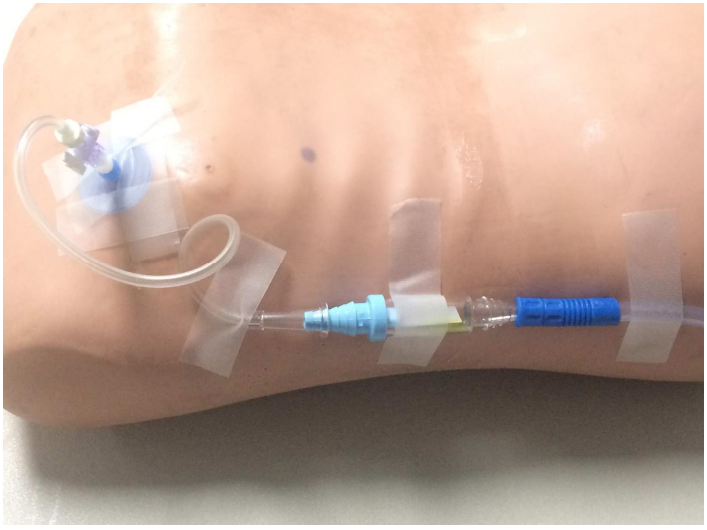
Procedure:

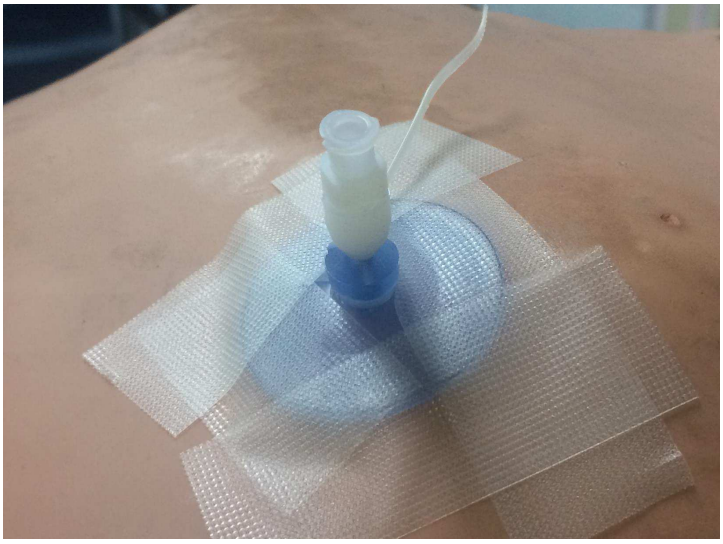
1. Administer high flow oxygen.
2. Prepare all equipment, apply and secure (with supplied wire tie) blue safety disk to catheter just below hub, make sure the flat side is to the patient's chest wall.
3. Identify and prep site with Betadine and/or alcohol
   - 2nd or 3rd intercostal space at the mid-clavicular line (anterior chest).
   - 4th or 5th intercostal space at the mid-axillary line (nipple is the 5th rib normally).
4. Insert decompression needle with syringe attached at a 90 degree angle to the chest over the top of the rib, confirm placement with aspiration or sudden "pop" or release of pressure/resistance.
5. Remove the syringe and needle(dispose properly) and thread catheter until flush with chest wall.
6. Secure the flat side of the blue safety disk to the chest with tape.
7. Attach stop cock (closed position) and the Heimlich valve.
8. Secure Heimlich valve to chest with tape.
9. Slowly open stop cock and attach Heimlich to suction source and adjust suction down to 80 mmHg..
10. If needle becomes possible occluded, attempt to aspirate occlusion with syringe or insert a second needle next to first site.
11. If an Air Release System (ARS) Needle Decompression System is used. The same locations are utilized, secure the IV catheter to the chest and place an Asherman chest seal over the angiocath once the needle is removed and disposed properly. Pediatric is the same procedure except using an 18 or 20 gauge IV catheter.

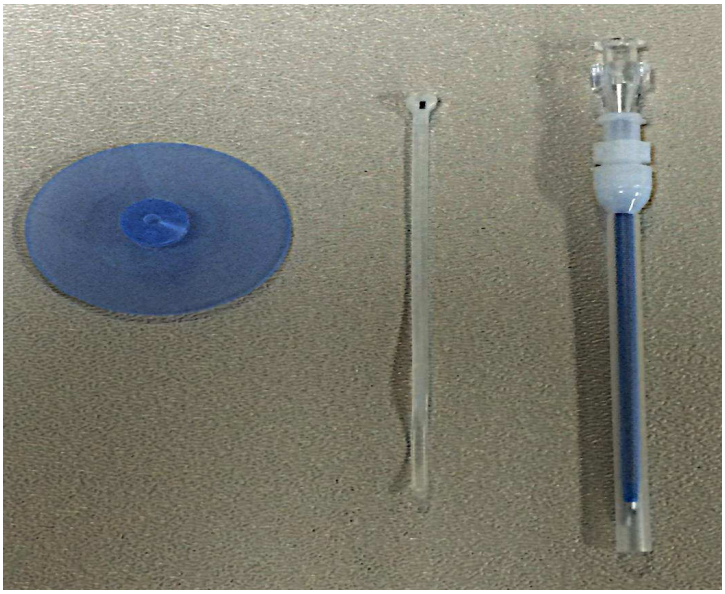
Special Notes

Do not administer Dopamine to patient with post-traumatic hemorrhaging.
Do not wait for tracheal deviation and distended neck veins to become visible before decompression.

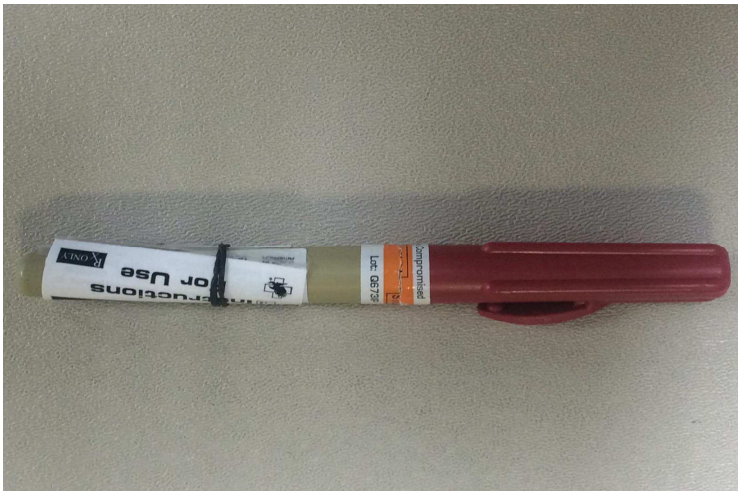
Cook Pneumothorax Kit







Air Release System (ARS)



Asherman Chest Seal

EMT, AEMT, & Paramedic – Standing Order

Assessment/Indications
Open pneumothorax

Procedure
1. Gather equipment
2. Open the Asherman Chest Seal package
3. Clean and dry the area around the wound with a sterile 4x4 or ABD pad
4. Remove the protective liner from the adhesive coated surface.(Have the patient exhale and place the dressing over the wound, adhesive side down with the valve directly over the wound.

Special Notes
Be careful when you pull off the adhesive backing, if you remove it fast it may fold back on itself and stick together rendering the chest seal useless.

Cincinnati Pre - Hospital Stoke Scale

EMR, EMT, AEMT, & Paramedic – Standing Order

This scale should be used for the initial stroke screen on suspected stoke patients. Explain your actions to the patient **BEFORE** doing any procedure.

Facial Droop

Directions: Have the patient smile or show you their teeth.

Normal: Both sides move equally.

ABNORMAL: One side of the face does not move or has noticeably less movement.

Arm Drift

Directions: Instruct the patient to hold their arms straight out, lift the patient's arms straight out. Make sure you support the arm in case the patient is unable to hold them up on their own.

Normal： Patient is able to hold both arms up equally.

ABNORMAL: One arm drifts (the patient is unable to hold one arm out straight).

Speech

Directions: Have the patient repeat "You can't teach an old dog new tricks".

Normal: Patient is able to repeat the phrase without slurred or inappropriate speech.

ABNORMAL: The patient's speech is slurred or has inappropriate speech.

If the patient has just one (1) **ABNORMAL** exam there is a 72% chance the patient is experiencing a stroke. The MEND exam should be utilized en route to complete a more detailed exam. Alert the receiving hospital of your findings as early as possible.

Continuous Positive Airway Pressure (CPAP)

Advanced EMT and Paramedic – Standing Order

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, reduce the work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation in patients who suffer from shortness of breath from asthma, COPD, pulmonary edema, CO poisoning, Near Drowning, CHF, and pneumonia. In patients with CHF, CPAP improves hemodynamics by reducing left ventricular preload and afterload.

Assessment/Indications

Any patient who is in respiratory distress for reasons other than trauma or pneumothorax, and;

- Awake and able to follow commands
- Over 12 years old and is able to fit the CPAP mask
- Have the ability to maintain an open airway
- Has a systolic blood pressure ***above*** 90 mm Hg
- Uses accessory muscles during respirations
- Sign and symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia

AND who exhibit one or more of the following;

- A respiratory rate greater than 25 breaths per minute
- Pulse Oximetry of less than 94% at any time
- Use of accessory muscles during respirations

Contraindications

- Patient is in respiratory arrest/apneic
- Patient is suspected of having a pneumothorax or has suffered trauma to the chest
- Patient has a tracheostomy
- Patient is actively vomiting or has upper GI bleeding
- Patient has decreased cardiac output, obtundation and questionable ability to protect airway (e.g. stroke, obtundation etc.), penetrating chest trauma gastric distention severe facial injury, uncontrolled vomiting
- Hypotension

Precautions

Use care if patient:

- Has impaired mental status and is not able to cooperate with the procedure
- Had failed at past attempts at noninvasive ventilation
- Has active upper GI bleeding or history of recent gastric surgery
- Complains of nausea or vomiting
- Has inadequate respiratory effort
- Has excessive secretions
- Has a facial deformity that prevents the use of CPAP

Procedure

1. Gather the appropriate equipment.
2. Assess vital signs and attach pulse oximeter.
3. Make sure patient does not have a pneumothorax!
4. *EXPLAIN THE PROCEDURE TO THE PATIENT*
5. Connect the CPAP to a 50 PSI oxygen outlet.
6. Ensure adequate oxygen supply to ventilate device (100% when starting and until Sp02 is greater than 95%)
7. Select a sealing face mask and ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the nose and mouth.
8. Attach the Breathing Circuit to the CPAP, insert and align the locking bayonet outlet adapter to the unit and turn clockwise until securely engaged.
9. Secure the mask to the patient with provided straps or the other provided devices.
10. Prior to setting the pressure always observe that the airway pressure gauge needle indicator is at the zero (0) value with the CPAP adjustment knob in the fully counterclockwise position and the breathing circuit is connected. To set continuous positive airway pressure, turn the CPAP adjustment clockwise and observe the needle indicator on the airway pressure gauge. Turn this on BEFORE applying mask.
11. If patient is in moderate distress turn CPAP adjustment clockwise to 5cm H20 pressure, titrate to best effect for the patient.
12. If patient is in Severe Distress turn CPAP adjust clockwise to 10cm H2O pressure, titrate to best effect for the patient.
13. Check for air leaks.
14. Monitor and document the patient's respiratory response to the treatment.
15. Continue to coach patient to keep mask in place and readjust as needed.
16. Evaluate vital signs every 5 - 10 minutes.
17. If respiratory status deteriorates, remove device and consider bag valve mask ventilation or other BLS/ALS support per appropriate protocol, intubate if indicated.

Removal Procedure

- CPAP therapy needs to be continuous and should not be removed unless the patient can not tolerate the mask or experiences respiratory arrest or begins to vomit.
- Intermittent positive pressure ventilation with a Bag-Valve-Mask, placement of a non-visualized airway and/or endotracheal intubation should be considered if the patient is removed from CPAP therapy.

Notes

- Do not remove CPAP until hospital therapy is ready to be placed on patient.
- Watch patient for gastric distention that can result in vomiting.
- Procedure may be performed on patient with Do Not Resuscitate Order.
- Due to changes in preload and afterload of the heart during CPAP therapy, a complete set of vital signs must be obtained every 5 minutes.
- Notify receiving hospital the CPAP has been applied so they can make arrangements to continue treatment
- Anytime a contraindication present after application the device should be removed

SIX (6) FOOT CORRUGATED MAIN TUBE
AIR PRESSURE GAUGE
LOCKING BAYONET MAIN OUTLET PORT AND BREATHING CIRCUIT ATTACHMENT
CPAP ADJUSTMENT
AREA RATIO / PRESSURE BALANCED EXALATION VALVE
BACTERIAL / VIRAL FILTER
AIRWAY PRESSURE LINE
INSPIRATORY CHECK VALVE
PATENTED SURFIT MASKS 3 SIZES S, M, L WITH HARNESS

Disposable CPAP Device

Procedure

1. Gather and assemble equipment. Be sure to add the nebulizer adaptor if you think you may need it.
2. Ensure adequate oxygen supply.
3. Assess vital signs and attach pulse oximeter.
4. Make sure patient does not have a pneumothorax!
5. *EXPLAIN THE PROCEDURE TO THE PATIENT*
6. Connect the CPAP to a 50 PSI oxygen outlet.
7. Select a proper size face mask and ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the nose and mouth.
8. Secure the mask to the patient with provided straps.
9. If the patient is in moderate distress adjust to 5cm H20 pressure, titrate to best effect for the patient.
10. If patient is in Severe Distress increase the CPAP to 7.5 - 10cm H2O pressure, titrate to best effect for the patient.
11. Check for air leaks.
12. Monitor and document the patient's respiratory response to the treatment.
13. Continue to coach patient to keep mask in place and readjust as needed.
14. Evaluate vital signs every 5 - 10 minutes.
15. If respiratory status deteriorates, remove device and consider bag valve mask ventilation or other BLS/ALS support per appropriate protocol, intubate if indicated.

Notes

- This device is disposable including the green oxygen adaptor
- Removal and notes from the Emergent are the same

5
7.5
10
cm H2O
5
7.5
10
cm H2O

Defibrillation - Manual

Paramedic – Standing Order

Assessment/Indications:
Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. Ensure chest compressions are adequate and interrupted only when necessary.
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply multifunction "combo pads" to the patient's chest in the proper position (Anterior-Posterior or sternum - Apex).
4. Set the appropriate energy level, refer to the **"Electrical Therapy Guidelines**" **Procedure I - 15**
5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.
6. Hold compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient**.**
7. Deliver the shock by depressing the shock button for hands free operation.
8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.
9. Repeat the procedure every two (2) minutes as indicated by patient response and ECG rhythm.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation

Deviation for Protocols/Protocols

EMR, EMT, AEMT, or Paramedic

- NEVER simply disregard a protocol.
- These protocols have been established so that the EMR, EMT, AEMT, and Paramedic may provide the best care possible to patients.
- Most patients will be covered by a single protocol. However, some patients may have signs and symptoms of illness and/or injury that are covered by more than one protocol or, in rare cases, following a protocol may not be in the best interest of the patient.
- In these cases you must be aware that combining protocols may lead to medication errors, overdose, and medication incompatibility. You are expected to use your judgment and to always make decisions that are in the best interest of the patient.
- If you use more than one protocol when treating your patient, you must document your reasoning in the narrative section of the Patient Care Report.
- If in your judgment, following a protocol is not in the best interest of the patient, contact medical control/direction, regarding your treatment. Document the rationale for deviation, and the name of the physician giving any orders.
- Any deviation from protocol should be documented in the EPCR with the rationale.

Dextrose Conversion

AEMT & Paramedic – Standing Order

D50% to D25%

Procedure

1. Open Dextrose 50% and assemble.
2. Remove 25 ml by pressing the syringe, waste liquid into a waste container since the contents are corrosive.
3. Wipe the medication (injection) port of the IV bag with an alcohol prep
4. Add a needle to the Dextrose 50% syringe.
5. Insert the needle of the Dextrose 50% into the medication port of the IV bag, remove 25 ml of Normal Saline.
6. Your Dextrose 50% is now Dextrose 25%, if the medication is to be utilized more than once label it accordingly to avoid any confusion.

D50% to D10%

Procedure

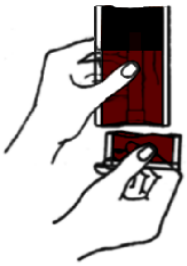
1. Open Dextrose 50% and assemble.
2. Take a 10ml saline flush and remove 2 ml.
3. Place a Double Luer Lock Adaptor on the Dextrose and Saline Flush.
4. Pull 2 ml from the Dextrose into the Saline Flush for a total of 10ml.
5. This provides you with D10% (1Gm/10ml)

INSTRUCTIONS FOR THE USE OF THE DUODOTE AUTO-INJECTOR

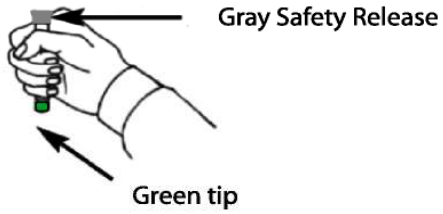
IMPORTANT: Do Not Remove Gray Safety Release until ready to use.

CAUTION: Never touch the Green Tip (Needle End)!

1) Tear open the plastic pouch at any of the notches. Remove the DuoDote Auto-Injector from the pouch.



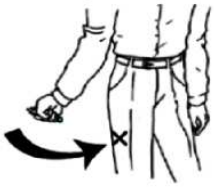
2) Place the DuoDote Auto-Injector in your dominant hand. (If you are right-handed, your right hand is dominant.) Firmly grasp the center of the DuoDote Auto-Injector with the Green Tip (needle end) pointing down.



3) With your other hand, pull off the Gray Safety Release. The DuoDote Auto-Injector is now ready to be administered.

4) The injection site is the mid-outer thigh area. The DuoDote Auto-Injector can inject through clothing. **However, make sure pockets at the injection site are empty.**

Self Aid



Emergency Personnel Aid

5) Swing and firmly push the Green Tip straight down (a 90° angle) against the mid-outer thigh. Continue to firmly push until you feel the DuoDote Auto-Injector trigger.

Self Aid

Emergency Personnel Aid

IMPORTANT: After the auto-injector triggers, hold the DuoDote Auto-Injector firmly in place against the injection site for approximately 10 seconds.

6) Remove the DuoDote Auto-Injector from the thigh and look at Green Tip. If the needle is visible, the drug has been administered. If the needle is not visible, check to be sure the Gray Safety Release has been removed, and then repeat above steps beginning with Step 4, but push harder in Step 5.

Needle visible

Needle not visible

7) After the drug has been administered, push the needle against a hard surface to bend the needle back against the DuoDote Auto-Injector.

8) Put the used DuoDote Auto-Injector back into the plastic pouch, if available. Leave used DuoDote Auto-Injector(s) with the patient to allow other medical personnel to see the number of DuoDote Auto-Injector(s) administered.

9) Immediately move yourself and the patient away from the contaminated area and seek definitive medical care for the patient.

DuoDote™ is a trademark of:
Meridian Medical Technologies™, Inc.
Columbia, MD 21046

A subsidiary of King Pharmaceuticals®, Inc.
1-800-776-3637

Electrical Therapy Guidelines

Paramedic – Standing Order

The Zoll monitor/defibrillator maximum charge is 200 Joules, Zoll utilizes biphasic rectilinear technology and the following settings should be used. This is a guideline on the amount of electrical therapy; refer to AHA guidelines when to apply the treatment. These recommendations are from Zoll medical cooperation; refer to the "**Zoll ACLS Defibrillation Protocols**". The guidelines are provided the patient stays in one rhythm, adjust accordingly.

ADULT GUIDELINES

Defibrillation

1st dose --------- 120 Joules
2nd dose --------- 150 Joules
3rd dose -------- 200 Joules

Cardioversion

1st dose ---------- 70 joules
2nd dose --------- 120 Joules
3rd dose --------- 150 Joules
4th dose --------- 200 Joules

PEDIATRIC GUIDELINES

Defibrillation

1st dose ------------------------------ 2 Joules/kilogram
2nd & additional doses ---------- 4 Joules/kilogram

Cardioversion

1st dose ------------------------------ 0.5 Joule/kilogram
2nd & additional doses ---------- 1.0 Joule/kilogram

Medical Equipment Failure

Personnel shall check their vehicle and all medical equipment daily. Failure of equipment does not automatically mean blame of anyone; equipment will fail at some point in its lifetime. If failure of medical equipment occurs follow the procedure below.

Procedure

1. Advise your supervisor as soon as practical by phone.
2. If on a call or if it makes you unavailable for a call notify dispatch.
3. If a device fails and the device is still needed for patient care request another unit or your supervisor to respond and bring another device. This could include mutual aid from anther county or agency if transporting within another county.
4. Remove the faulty equipment from service ASAP and get it to the EMS Chief or your supervisor for a replacement.
5. Complete an incident report and document as many details as possible to make the repair process easier and quicker. Leave the report with the equipment at Headquarters in the medical supply room.
6. Any failure of medical equipment during patient care should have the FDA 3600 form completed. Refer to the WEMA policy manual.

Esophageal Intubation Detector – Syringe Type

Paramedic – Standing Order

Assessment/Indications

To assist in determining the correct placement of an endotracheal or nasotracheal tube.

Procedure

1. Perform intubation.
2. Ensure all air is removed prior to placing the EID on the tube.
3. Once the EID is placed on the endotracheal tubes 15 mm adaptor, pull back on the syringe.
4. If the syringe pulls back easily, this indicates probable tracheal intubation. Additional confirmation(s) should be performed (at least two (2) more ways.
5. If the syringe does not pull back easily, this indicates probable esophageal intubation and the need to reassess the airway.
6. Document time and result in the patient care report (PCR).
7. Apply EtCO2 after confirmation with the esophageal bulb for additional confirmation.

Notes

- Be careful documenting negative or positive refill of bulb, document the bulb did or did not re-inflate.
- This is one method in confirming proper placement of an endotracheal tube; refer to **"Basic Assessment and Management" A - 3 page 5.**

Glucose Analysis

AEMT & EMTP – Standing Order

Assessment/Indications

- Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.)
- All suspected stroke patients

Procedure

1. Gather and prepare equipment.
2. Check expiration date on reagent strips, confirm reagent strips lot number matches the chip in the Glucometer (if applicable).
3. Blood samples for performing glucose analysis should be obtained by a finger stick (capillary blood). Do not use venous blood from an IV catheter.
4. Place blood on reagent strip or site on glucometer per the manufacturer's instructions.
5. Document the glucometer reading and treat the patient as indicated by the protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.
7. Perform calibration (HI & LOW test) per manufacturer's instructions.

Nebulized Normal Saline

AEMT & Paramedic – Standing Order

Assessment/Indications

This procedure may be utilized for respiratory emergencies as indicated within the Wilson County Emergency Management Agency protocols.

Procedure

1. Gather all necessary equipment (nebulizer and normal saline flush)
2. Inject 5 ml's of normal saline into the nebulizer
3. Run oxygen at 6 – 10 LPM
4. This may be applied by any acceptable device approved for administration (a few would include oxygen mask, BVM, & blow by method).

Intranasal Medication

AEMT	PARAMEDIC

Medication administration in a certain subgroup of patients can be a very difficult endeavor. For example, an actively seizing or medically restrained patient may make attempting to establish an IV almost impossible which can delay effective drug administration. Moreover, the paramedic or other member of the medical team may be more likely to suffer a needle-stick injury while caring for these patients.

In order to improve pre-hospital care and to reduce the risks of accidental needle-stick, the use of the Mucosal Atomizer Device (MAD) is authorized in certain patients. The MAD allows certain IV medications to be administered into the nose. The device creates a medication mist which lands on the mucosal surfaces and is absorbed directly into the bloodstream.

Assessment/Indications

Emergent need for medication administration and IV access unobtainable or presents high risk of needlestick injury due to patient condition.

- Seizures / Behavioral Control: Midazolam (Versed) may be given intranasal until IV access is available.
- Altered Mental Status from Suspected Narcotic Overdose: Naloxone (Narcan) may be given intranasal until IV access is available
- Symptomatic Hypoglycemia (Blood sugar less than 80 mg/dl): Glucagon may be given intranasal until IV access is available.

Medications administered via the IN route require a higher concentration of drug in a smaller volume of fluid than typically used in the IV route. In general, no more than 1 milliliter of volume can be administered during a single administration event.

Contraindications:

- Bleeding from the nose or excessive nasal discharge
- Mucosal Destruction
- Nasal trauma
- Less than 6 months of age

Technique:

- Draw proper dosage (see below)
- Expel air from syringe
- Attach the MAD device via LuerLock Device
- *Briskly* compress the syringe plunger

Complications:

- *Gently* pushing the plunger will not result in atomization
- Fluid may escape from the naries
- IntraNasal Dosing is less effective than IV dosing (Slower onset, incomplete absorption)
- Current patient use of nasal vasoconstrictors (Neosynephrine/ Cocaine) will significantly reduce the effectiveness of IN medications. Absorption is delayed, peak drug level is reduced, and time of drug onset is delayed.

Intraosseuos Insertion (EZ-IO)

AEMT & Paramedic – Standing Order

Assessment/Indications:
When access is needed for a critical patient for fluid replacement or medication administration.

Equipment

1. (2) 10 mL syringes with appropriate volume of normal saline flush (minimum 5 mL)
2. Appropriate size Intraosseuos needle set based on pt. weight
   (1) PD needle set for 3 - 39 kg. ***If this needle is too short the AD needle may be utilized.***
   (2) AD needle set for all patients greater than 40 kg.
   (3) Obese needle (excessive tissue)
3. Non-sterile non-latex gloves (2 pairs)
4. Low profile EZ connect
4. (1) Institutions current antiseptic agent
5. Semi-permeable transparent dressing (optional)
6. Sterile 2 x 2 gauze if needed for skin cleansing
7. Appropriate IV tubing
8. Appropriate IV solution
9. Pressure infusion system or pressure bag
10. EZ IO driver

1. Indications for Use

1.1. Intraosseous access is useful for infusion therapy, medication administration, blood drawing, or vascular access maintenance.

2. Considerations

- Flow rate: To ensure and improve continuous infusion flow rates always use a syringe, pressure bag or infusion pump
- Ensure the administration of an appropriate rapid SYRINGE BOLUS (flush) prior to infusion NO FLUSH = NO FLOW
  a. Rapid syringe bolus (flush) the **EZ-IO with 10 ml of normal saline**
  b. Repeat syringe bolus (flush) as needed
- Pain**:** Insertion of the EZ-IO AD® & EZ-IO PD® in conscious patients has been noted to cause mild to moderate discomfort (usually no more painful than a large bore IV).
  a. However, IO Infusion for conscious patients has been noted to cause severe discomfort
  b. Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2%. ***Be sure the prime the EZ connection extension set with Lidocaine*** (Preservative Free) through the EZ-IO. *Ensure that the patient has no allergies or sensitivity to Lidocaine.*
  c. EZ-IO PD® Slowly administer 0.5 mg /kg of Lidocaine 2% (Preservative Free)
  d. EZ-IO AD® and Obese ®Slowly administer 20 mg (1ml) – 40 mg (2 ml) of Lidocaine 2% (Preservative Free)

LIDOCAINE IS FOR PARAMEDICS ONLY

3. Procedure

- Explain procedure to patient/family.
- Choose appropriate Intraosseuos needle and assemble equipment.
- Obtain assistance as needed.
- Draw up two (2) syringes with normal saline flush (10 mL).
- Inspect needle package to ensure sterility
- Connect 10 cc syringe to EZ connect, prime with normal saline (or Lidocaine if conscious).
- Leave 10 mL syringe attached.
- Position patient (supine) and palpate site to locate appropriate anatomical landmarks for needle placement.
- Locate appropriate insertion site.

EZ-IO ADULT & OBESE: (40 kg and over)

- **Proximal Tibia** – The insertion point is two (2) fingerbreadths below the patella, 1 - 2 cm. medial of the tibial tuberosity.
- **Distal Tibia- I**dentify the major structures of the lower leg, the Distal Tibia (anterior or most forward lower leg bone) and the Medial Malleolus (medial ankle bone or protrusion). The insertion point is two finger widths proximal to the Medial Malleolus and midline on the tibia.
- **Proximal Humerus** – The insertion point is most prominent aspect of the greater tubercle's outer margins. *(Ensure that the insertion site has been identified and that the patient's forearm, more specifically the hand is on the patient's abdomen – at or near the umbilicus and the elbow is positioned posteriorly. Only this orientation will provide the safest most prominent insertion site. Failure to properly orient the patients arm may lead to serious injury). Deeply palpate the humeral head, two fingerbreadths from the superior portion is the greater tubercle.*

EZ-IO PEDIATRIC: (3-39 kg)

- **Proximal Tibia** – 1 cm distal to tibial tuberosity and then medial along the flat aspect. Gently guide the driver, do not push. Carefully feel for the "give" indicating penetration into the medullary space.
- **Distal Tibia-** identify the major structures of the lower leg, the Distal Tibia (anterior or most forward lower leg bone) and the Medial Malleolus (medial ankle bone or protrusion). The insertion point is one finger width proximal to the Medial Malleolus for pts less than 12kg. As the patient reaches the 39kg mark, the insertions point is two finger widths from the Medial Malleolus.
- **Proximal Humerus**-The insertion point is most prominent aspect of the greater tubercle's outer margins. *(Ensure that the insertion site has been identified and that the patients forearm, more specifically the hand is on the patient's abdomen – at or near the umbilicus. Only this orientation will provide the safest most prominent insertion site. Failure to properly orient the patients arm may lead to serious injury). Deeply palpate the humeral head, two fingerbreadths from the superior portion is the greater tubercle*

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- Apply non-sterile latex free gloves (if not already)
- Open the following and drop onto field:
  - Institutions current antiseptic agent
  - Semi permeable transparent dressing
  - 2 x 2 gauzes
  - Place needle and extension tubing with attached syringe with in field.
- Using friction/scrubbing motion, cleanse the skin site with the institutions current antiseptic agent
- Allow to *air dry thoroughly* – do not blot dry.
- Stabilize site by holding joint proximal to the insertion site
- Connect weight based needle set to driver

- Remove needle cap
    a) Insert EZ-IO needle into the selected site. IMPORTANT: ***DO NOT*** touch the needle set with your fingers.
    b) Position the driver at the insertion site with the needle set at a 90-degree angle to the bone surface. Gently pierce the skin with the needle set until the needle set tip touches the bone.
    c) Check to ensure that at least 5mm of the catheter is visible as indicated by the proximal depth indicator. If less that 5 mm of the catheter is showing, the patient may have excessive soft tissue over the tibial site and the needle set may not reach the medullary space. The site you have selected may not be appropriate for the EZ-IO – consider an alternate location for insertion.
    d) Penetrate the bone cortex by squeezing the driver's trigger and applying gentle, steady downward Pressure

    Release the driver's trigger and stop the insertion process when:
    1. A sudden "give or "pop is felt upon entry into the medullary space.
    2. When desired depth is obtained.
    3. IMPORTANT: During Intraosseuos catheter insertion **use gentle-steady pressure. Do not use excessive force on the needle set. Allow the catheter tip rotation and gentle downward pressure to provide the penetrating action. "STOP WHEN YOU FEEL THE POP"**
    4. **Note:** If the driver stalls and will not penetrate the bone you may be applying too much downward pressure.
    5. **CAUTION:** If catheter insertion into the site cannot be properly completed, remove and dispose of the needle set in appropriate sharps-biohazard container. Repeat the procedure in the patient's opposite extremity or appropriate site with a new needle set.
- Remove EZ-IO driver from needle set while stabilizing catheter hub.
- Remove stylet from needle set, place stylet in temporary shuttle provided and then dispose of into sharps container or deposit directly into sharps container.
- Connect EZ Connect or standard IV tubing to Luer-lock hub.
  DO NOT ATTACH A SYRINGE DIRECTLY TO THE EZ-IO AD CATHETER HUB –Doing so may cause enlargement of the hole at the insertion site and possible extravasation (exception when initially drawing a blood sample)
- Syringe bolus Flush the EZ-IO catheter with ml of Normal Saline.
  a. IMPORTANT: Prior to flush consider the aspiration of a small amount of blood to confirm placement.
  b. Consider IO 2 %Lidocaine (preservation free) for conscious patients prior to flush.
  c. **NO FLUSH=NO FLOW** Failure to appropriately flush the IO catheter may result in a limited or no flow treatment situation.
- Confirm placement.
- Assess for potential IO complications.
- Disconnect 10 cc syringe from EZ connect extension set.
- Connect EZ Connect extension set to primed IV tubing.
- Begin infusion utilizing pressure delivery system.
- Secure tubing and catheter.
- Monitor EZ-IO site for complications.
- Place EZ-IO identification band on patient, document time, date and person starting infusion

Catheter Removal

1. Remove the extension set from the needle hub.
2. Attach a 5-10 cc sterile syringe to act as a handle and to cap the open IO port.
3. Grasp catheter at hub and rotate catheter and syringe clockwise a few turns to loosen catheter and then begin to gently pull upwards to a 90-degree angle from the insertion site.
4. Continue rotating clockwise and pull gently outwards at a 90 degree angle until catheter is removed. DO NOT ROCK OR BEND DURING THIS PORTION OF THE PROCEDURE.
5. Dispose of catheter into a sharps container
6. Wipe site, apply pressure to site if bleeding, and then cover with adhesive dressing.

Possible Complications with removal

1. Catheter separation from plastic hub
    a. If this occurs, grasp exposed area of catheter with a hemostat, maintaining a 90 degree position.
    b. Turn clockwise and counter clockwise while gently pulling upwards to remove catheter.
    c. Place catheter into sharps container.
    d. Wipe site, apply pressure to site if bleeding, and then cover with adhesive dressing.

King LTSD Airway

AEMT & Paramedic – Standing Order

1. **Goal/Purpose**
   - The King Airway (LT-D) is to be used as an alternative to endotracheal intubation for advanced airway management. It is placed in the esophagus and serves as a mechanical airway when ventilation is needed for patients who are over 4 feet tall and apneic or unconscious with ineffective ventilations.

   - The King Airway is a latex free single use device. It consists of a curved tube with ventilation apertures located between two inflatable cuffs. Both cuffs are inflated using a single valve / pilot balloon. The distal cuff is designed to seal the esophagus, while the proximal cuff is intended to seal the oropharynx. Attached to the proximal end of the tube is a 15 mm connector for attachment to a standard breathing circuit or resuscitation bag.

2. **Indications**
   - When endotracheal intubation is unsuccessful after 2 attempts
   - Patients over 4 feet tall in respiratory or cardiac arrest
   - It is not necessary to attempt intubation if a difficult airway is anticipated or visualized. The King airway may be used as the first line airway in these cases.
   - Below is the Cormick and Lehame Grades of Difficult Airway Grades III and IV are considered difficult

3. **Contraindications**
   - Active gag reflex
   - Caustic ingestion or extensive airway burns
   - Known esophageal disease
   - Laryngectomy with stoma
   - Height less than 4 feet

4. **Precautions**
   - The King airway may not protect from effects of regurgitation and aspiration
   - High airway pressures may divert gas into the atmosphere or stomach
   - Intubation of the trachea cannot be ruled out a potential complication of insertion of the King airway
   - After placement, perform standard checks for chest rise and breath sounds and utilize waveform capnography
   - Lubricate only the posterior surface of the King LT– SD to avoid blockage of the ventilation apertures or aspiration of the lubricant

5. **Equipment**

The King LT(S)D airway comes in three sizes

i. Size 3 (height 4 - 5 feet)
ii. Size 4: (height 5 - 6 feet)
iii. Size 5: (height over 6 feet)

King LT(S)D Size	3	4	5
Recommended Patient Height	4' – 5'	5' – 6'	Over 6'
Cuff Volume	40 - 55 ml	50 - 70 ml	60 - 80 ml
Connector Color	Yellow	Red	Purple

- Do not use the King LTSD airway in persons < 4 feet tall
- The King airway may come prepackaged in a kit that includes the tube, a 60cc or 80 cc syringe and lubricant.
- A tongue blade may be used to facilitate placement of the King airway.

6. **Procedure**

Insertion

- Choose the correct size King airway based on the patients height.
- Test the cuff inflation system by injecting the maximum recommended volume of air into the cuffs.
- Remove all air from the cuffs prior to insertion.
- Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube taking care to avoid the introduction of lubricant in or near the ventilatory openings.
- Pre-oxygenate the patient.
- Position the head: The ideal head position for insertion of the King airway is the sniffing position; tube can also be used with the head in a neutral position.
- Hold the King airway at the connector end with the dominate hand. With the non-dominant hand hold the mouth open and apply a chin lift unless contraindicated due to suspected spinal injury.
- With the King airway rotated laterally 45 – 90 degrees such that the blue orientation line is touching the corner of the mouth, introduce the tip of the tube into the mouth and advance behind base of the tongue. Never force the tube into position.
- As the tube tip passes under the tongue rotate the tube back to midline (blue orientation line faces the chin).
- Without exerting excessive force, advance the King airway until the base of the connector aligns with the teeth or gums.
- Fully inflate the cuffs using the maximum volume of the syringe included in the EMS kit. (see chart)
- Attach the bag –valve mask device to the 15 mm connector of the King and gently bag start bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
- Note the depth markings to give an approximate distance in cm's to the vocal cords.
- Confirm proper position by auscultation, chest movement and verification of CO2 using waveform capnography (Paramedic only)
- Readjust cuff inflation to just seal the airway
- Secure the King airway to the patient using an accepted method and bite block/oral airway. Use care not to place tape over the proximal opening of the gastric access device.

7. **Removal of the King LT-D**
   - Once it is in the correct position, the King LT-D is well tolerated until the return of protective reflexes.
   - Suction must always be available when the King airway is removed
   - It is important that both cuffs are completely deflated prior to removal of the King airway.
   - Anticipate vomiting with removal of the King airway and position the patient on the side if possible.

8. **Special information / Complications**
   - If unable to place the King airway in two attempts, abandon further attempts and utilize bag-valve-mask ventilation.
   - Depth of insertion is key to providing a patent airway. Ventilatory openings of the King airway must align with the laryngeal inlet for adequate ventilation to occur. Accordingly, the insertion depth should be adjusted to maximize ventilation. Experience has indicated that initially placing the King airway deep enough to align the base of the connector to the teeth or gums, inflating the cuffs, and withdrawing the tube until ventilations are optimized will assist in optimal placement.
   - Ensure that the cuffs are not over inflated. Inflate the cuffs with the minimum volume necessary to seal the airway at the peak ventilatory pressure. If the patient becomes more alert it may be helpful in retaining the tube to remove a slight amount of the air from the balloons.
   - Most unsuccessful attempts relate to the failure to keep the tube in a midline position during insertion.
   - Do not force the tube during insertion; this may result in trauma to the airway or esophagus.

9. **Documentation**
   - Document the size and depth in cm's of the King airway.
   - Document any complications of intubation attempts or King airway insertion.
   - Document all methods used to ensure appropriate placement of the King airway including lung sounds, absence of epigastric sounds, waveform capnography reading, and misting of the King airway.
   - Assess and document placement verification of the King airway after every patient move and frequently during care and transportation.

10. **Transport Considerations**
    - Contact the intended receiving hospital as early as possible during the course of patient treatment for respiratory and/or cardiac arrest.
    - Notify the hospital during the verbal report that the airway has been maintained using a King airway.
    - Ensure that the resuscitation team, including the receiving physician and respiratory therapist, are aware that the King airway is in place on arrival to the receiving hospital and familiarize them as needed with the equipment.

Magnesium Sulfate Mixture (Adult)

Paramedic – Standing Order

Assessment/Indications

This medication may be utilized for respiratory emergencies as indicated.

Procedure

Main Line Prep

1. Obtain and setup equipment for vascular access, set up according to manufacturer recommendations. The IV tubing should always be 10 drop/ml.
2. Obtain Vascular access and ensure no side effects and the rate is set at TKO (unless otherwise indicated).

Secondary Line Prep

1. Prepare a 50 ml bag of an IV solution
2. Prepare the Magnesium Sulfate with sterile practices
3. Clean the injection port on the IV solution
4. Invert the IV bag and inject 2 Grams (4 ml) of Magnesium Sulfate into the IV solution.
5. Insert the Magnesium Sulfate into the medication port of the IV solution
6. Gently rotate the IV bag to mix medication
7. Attach 10 drop IV tubing to the 50 ml bag
8. Attach the gravity flow controller to the IV tubing
9. Open the gravity flow controller package extension set, remove the protective cover. Set the volume selector to the 300 ml/hr and ensure the clamp is open.
10. Bleed all air from the IV tubing and the gravity control extension set. Once all air is bled from the tubing clamp the IV tubing.
    Note: The volume selector is very hard to move for the first time, do not be afraid to use slight force to open the volume selector. Invert the gravity flow controller and "tap" to dislodge any trapped air while flushing the tubing.
11. Clean the medication port on the main line with alcohol.
12. Attach the secondary line with the gravity flow controller extension set to your main line 10 drop tubing
13. Clamp/turn off the main IV line, make sure main secondary line (drip) is higher than main IV line.
14. Ensure the gravity flow controller is set to 300 ml/hr and open your secondary IV clamp.
15. Unclamp all clamps on the secondary line.
16. The infusion should be completed in about ten (10) minutes.
17. Once the 50 ml bag is empty let the medication pass by the gravity flow controller since there is a significant amount of medication in the IV tubing (be extremely careful and monitor, do not allow any air to enter into the circulatory system).
18. Clamp the secondary IV line off and remove it from the main IV line, discard accordingly.
19. Open main line to an appropriate rate

NOTE:
These calculations are based on the 20 gtts/ml gravity flow controller.

Magnesium Sulfate Mixture (Pediatric)

Paramedic – Standing Order

Assessment/Indications
This medication may be utilized for cardiac emergencies as indicated.

Procedure:

Main Line Prep

1. Obtain and setup equipment for vascular access, set up according to manufacturer recommendations. The IV tubing should always be 10 drop/ml.
2. Obtain Vascular access and ensure no side effects and the rate is set at TKO (unless otherwise indicated).

Secondary Line Prep

1. Prepare a ***100 ml bag*** of an IV solution
2. Invert the IV bag, clean the injection port with alcohol and inject 2000 mg (2 Grams) of Magnesium Sulfate.
3. Gently rotate the IV bag to mix medication.
4. Attach a Buretrol set to the 100 ml bag.
5. Place the amount of **ML** recommended in the Dose Medic reference manual in the Buretrol chamber.
6. Close the regulator and chamber to not allow any more medication into the Buretrol set.
7. Open the gravity flow controller package extension set, remove the protective cover. Set the volume selector to the open and ensure the clamp is open.
8. Bleed all air from the IV tubing and the gravity control extension set. Once all air is bled from the tubing clamp the IV tubing.
   Note: The volume selector is very hard to move for the first time, do not be afraid to use slight force to open the volume selector. Invert the gravity flow controller and "tap" to dislodge any trapped air while flushing the tubing.
9. Clean the medication port on the main line with alcohol.
10. Attach the secondary line with the gravity flow controller extension set to your main line tubing
11. Clamp/turn off the main IV line, make sure secondary line (drip) is higher than main line.
12. Ensure the gravity flow controller is set to the desire amount (see below for calculation) and open your secondary IV clamp.
13. The infusion should be completed in twenty (20) minutes.
14. Once the 100 ml bag is empty let the medication pass by the gravity flow controller since there is a significant amount of medication in the IV tubing (be extremely careful and monitor, do not allow any air to enter into the circulatory system).
15. Clamp the secondary IV line off and remove it from the main IV line, discard accordingly.
16. Open main line to an appropriate rate

NOTE:
Calculations are based on the 20 gtts/ml gravity flow controller. The rate is based on 20 minute infusion.

Calculations
Volume (100) {per Dosemedic book} divided by time (hour) = ml per hr on controller
EXAMPLE
10 kg pt. – 25 (ml) ***DIVIDE*** by 0.33 (hr) = 75 ml/hr on gravity flow device
40 kg pt. – 100 (ml) ***DIVIDE*** by 0.33 (hr) = 300 ml/hr on gravity flow device

Meconium Suctioning

Paramedic – Standing Order

Assessment/Indications
1. Meconium noted during birth

Precautions
Be cautious to prevent hypoxia

Technique
1. Suction oral airway
2. Gather equipment
    a. Correct sized endotracheal tube
    b. Meconium aspirator
    c. Suction (set to a maximum of 80 mmHg)
3. Connect the meconium aspirator to the suction tubing
4. Intubate newborn
5. Apply the meconium aspirator to the endotracheal tube 15 mm adaptor
6. Place thumb over the suction control port to regulate suction and remove meconium. Suctioning should be done while the endotracheal tube is being removed.

Special Notes
- The newborn may have to be intubated and suctioned more than once to clear all Meconium.
- Refer to the **"Meconium Aspirator" J - 28**

Nasal Intubation

Paramedic – Standing Order

Assessment/Indications

- CNS trauma.
- Rigidity or hypoxia from seizures (e.g. “clenched teeth”).
- Poisonings.
- Metabolic disturbance.
- Patients with severe respiratory distress.

Contraindications

- Non-breathing or near apneic patient.
- Known or likely fracture/instability of mid-face secondary to trauma.
- Relative contraindications:
- Blood clotting abnormalities.
- Nasal Polyps.
- Upper neck hematomas or infections.
- Cautious use in the head injury patient

Procedure

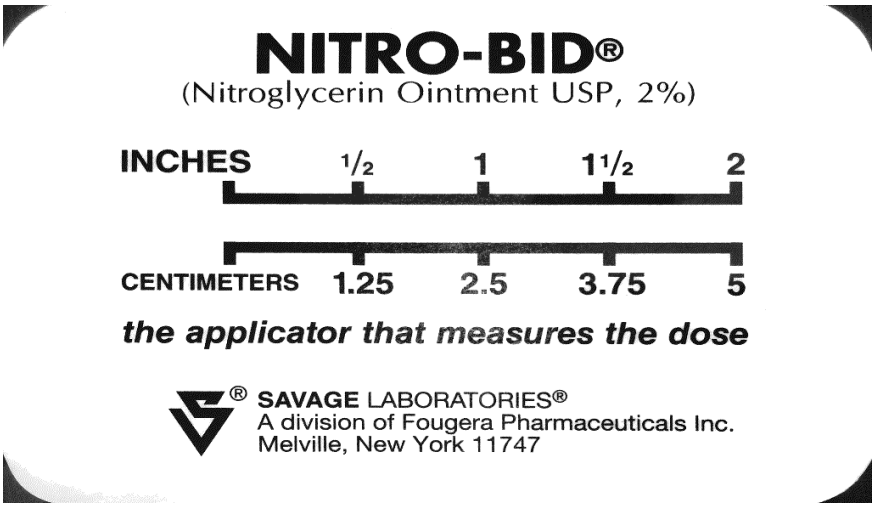
1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Choose proper ET tube about 1 mm less than for oral intubation.
3. Lubricate ET tube generously with water-soluble lubricant and place BAAM device on the ET tube.
4. Pass the tube in the largest nostril with the beveled edge against the nasal septum and perpendicular to the facial plate.
5. Use forward and lateral back and forth rotational motion to advance the tube. **Never force the tube.**
6. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist you.
7. Apply firm, gentle cricoid pressure and advance the tube quickly past the vocal cords during inspiration.
8. Inflate the cuff with 3 to 10 cc of air, secure the tube to the patient’s face, and confirm bilateral breath sounds.
9. Confirm placement and document results; refer to the **“Basic Assessment and Management” A - 3 page 5.**
10. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment..

NITRO-BID (Nitroglycerin Ointment)

Paramedic – Standing Order

1. Measure the desired dosage of NITRO-BID by means of the dose measuring applicator supplied.
2. Place the applicator on a flat surface, printed side down.
3. Squeeze the desired amount of ointment from the tube onto the applicator.
4. Ensure desired area of skin with little or no hair that is free of scars, cuts, or irritation.
5. Place the applicator (ointment side down)
6. Spread the ointment using the dose measuring applicator
7. DO NOT rub the skin

SAVAGE LABORATORIES®
NITRO-BID® NDC 0281-0326-08
(Nitroglycerin Ointment USP, 2%)
This product available in tubes.
1 gram is equivalent to approximately 1 inch as squeezed from a tube. Use entire contents of foilpac® and DISCARD foilpac® IMMEDIATELY AFTER USE.
EY9681
FEB18
NET WT 1 g
℞ only
tear here
foilpac®


NITRO-BID®
(Nitroglycerin Ointment USP, 2%)
INCHES ½ 1 1½ 2
CENTIMETERS 1.25 2.5 3.75 5
the applicator that measures the dose
SAVAGE LABORATORIES®
A division of Fougera Pharmaceuticals Inc.
Melville, New York 11747

Oral tracheal Intubation

Paramedic – Standing Order

Assessment/Indications

- Hypoxic or obtunded patients.
- Patients with possible increasing ICP.
- Respiratory arrest.

Contraindications

a) Presence of gag reflex.

b) Relative contraindications:

c) Blood clotting abnormalities.

d) Upper neck hematomas or infections.

Procedure

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Select proper ET tube (and stylette, if used), have suction ready.
3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver to assist you).
4. Limit each intubation attempt to 30 seconds with BVM between attempts.
5. Visualize tube passing through vocal cords.
6. Confirm placement and document results, refer to the **"Basic Assessment and Management" A - 3 page 5**
7. Inflate the cuff with 6 to 10 cc of air; secure the tube to the patient's face with a commercial device or tape.
8. Auscultate for absence of sounds over the epigastrium and bilaterally equal breath sounds. If you are unsure of placement you should remove tube and ventilate patient with bag valve mask. If you intubate the esophagus you can leave the tube in place, push the tube to the left or right of the mouth and place the BVM mask over the ET Tube. You may have a slight leaking of air but the pt. can still be effectively ventilated and your intubation should be successful since you have limited to one (1) orifice.
9. Consider using a double lumen airway (King LT) if intubation efforts are unsuccessful.
10. Apply ETCO2 detector (disposable) and ETCO2 (Zoll) if time permits and record readings.
11. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.

Orthostatic Vital Signs

EMR, EMT, AEMT & Paramedic – Standing Order

Assessment/Indications

Patients with suspected intravascular fluid deficit/dehydration

Contraindications

1. Patients with contraindication to supine position (e.g., spinal immobilization)
2. Patients obviously volume depleted based on history or physical exam do not require orthostatic evaluation

Procedure

1. Gather and prepare sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 30 mm Hg or the pulse raises more than 20 bpm, the patient is considered to be orthostatic. Treat accordingly.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Pacing

Paramedic – Standing Order

Assessment/Indications

Monitored heart rate less than 60 per minute with signs and symptoms of inadequate cerebral or cardiac perfusion such as:

- Chest pain.
- Hypotension.
- Pulmonary edema.
- AMS, disorientation, confusion, etc.
- Ventricular ectopy.
- Asystole, pacing must be done early to be effective.
- PEA, where the underlying rhythm is bradycardic and reversible causes have been treated.
- 3° AVB with AMS and hypotension
- 2° Type II AVB with AMS and hypotension

Procedure

1. Attach standard four-lead monitor/defibrillator to patient.
2. Check expiration date before applying pads. Apply combo pads, one pad to left mid chest next to sternum, one pad to mid left posterior chest next to spine. The anterior/posterior placement may also be utilized.
3. Rotate selector switch to pacing.
4. Adjust heart rate to 60 - 70 BPM (defaults to 70 bpm) for an adult and 100 BPM for a child.
5. Note pacer spikes on EKG screen.
6. Slowly increase output (milliamps) until capture of electrical rhythm on the monitor.
7. If unable to capture while at maximum current output, stop pacing immediately.
8. If capture is observed on monitor, check for corresponding pulse and assess vital signs.
9. Consider the use of sedation or analgesia if patient is uncomfortable, refer to the "**Cardioversion and Pacing Sedation" Protocol G – 2**
10. Document the dysrhythmia and the response to external pacing with ECG strips in the PCR.

Special Notes

1. The Zoll monitor will not pick up an EKG tracing while pacing if the 4 lead patient cable is not attached and monitoring in lead.
2. The Zoll will generally start capture at 40 – 60 milliamps but may require more.

Pulse Oximeter

EMT, AEMT, & Paramedic – Standing Order

Assessment/Indications
Patients with suspected hypoxemia, however, it is common practice to apply to most patients and document as a vital sign.

Procedure
1. Apply probe to patient's finger or any other digit as recommended by the device manufacturer. Younger pediatric patients may need a pediatric probe or disposable flexible probe to read accurately and stay in place.
2. Allow machine to register saturation level.
3. Record time and initial saturation percent on room air if possible on/with the patient care report (PCR).
4. Verify pulse rate on machine with actual pulse of the patient.
5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
7. In general, normal saturation is 94 - 99%. Below 94%, suspect a respiratory compromise/hypoxia.
8. Use the pulse oximetry as an added tool for patient evaluation. **Treat the patient, not the data provided by the device.**
9. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.
10. Factors which may reduce the reliability of the pulse oximetry reading include:
    (a) Poor peripheral circulation (blood volume, hypotension, hypothermia)
    (b) Excessive pulse oximeter sensor motion
    (c) Fingernail polish (may be removed with acetone pad)
    (d) Carbon monoxide bound to hemoglobin
    (e) Irregular heart rhythms (atrial fibrillation, SVT, etc.)
    (f) Jaundice
    (g) Placement of BP cuff on same extremity as pulse ox probe.

Rectal Medication Administration

Paramedic – Standing Order

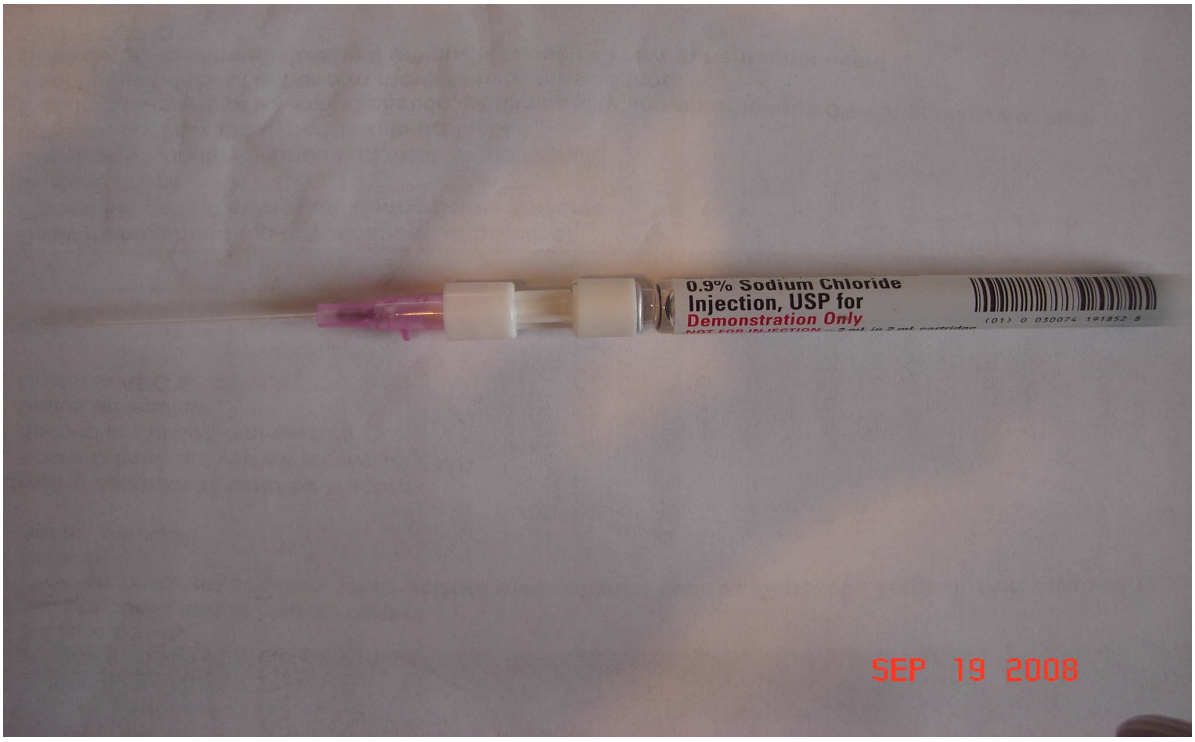
Assessment/Indications
This medication route can be utilized for medication administration. The most common use is Valium administration for pediatric patients.

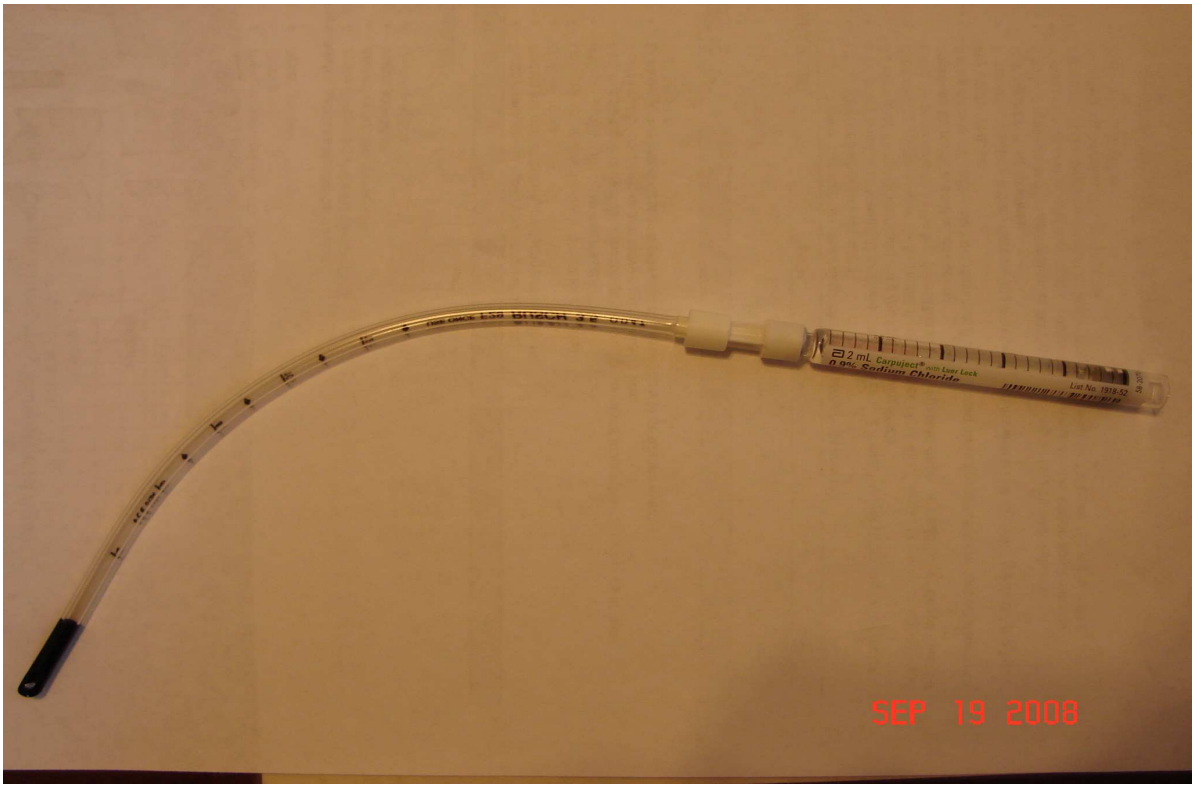
Procedure

1. Gather and prepare equipment
    a. 14 gauge IV catheter, filter straw or 2.5 endotracheal tube
    b. Medication to be administered
    c. IV catheter – Remove the needle from the catheter (dispose properly) and apply the catheter to the needleless syringe
    d. Endotracheal tube – Remove the stylet and the 15/22mm BVM adaptor, lubricate the ETT with water soluble jelly.
2. Place the child in a side-lying position.
3. Insert the syringe about 1 inch into the rectum.
4. Administer the correct amount of medication for the patient/scenario and slowly remove the syringe. As you remove the syringe, hold the child's buttocks together. Hold or tape them together for 10 minutes.

Special Notes

- Be careful when utilizing the entire amount of a medication when the entire amount is not going to be administered. For example Valium is packaged 10mg/2ml, if you are planning to administer 5 mg (1ml) be sure you are in a situation where nothing happens accidentally and the entire amount is pushed.
- If the ETT is utilized, the length should be shortened or normal saline added to the syringe to the extra space within the ETT.
- The 2.5 ETT has a 2.5 ml "air space" and the 14 ga IV catheter and filter straw have about 0.25ml of "air space" these must be taken into account.


0.9% Sodium Chloride
Injection, USP for
Demonstration Only
SEP 19 2008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ResQPOD

AEMT & Paramedic – Standing Order

I. ResQPOD Circulatory Enhancer:

A. Conventional CPR provides 15% of normal blood flow to the heart and blood flow to the brain is 25% of normal. Current survival rates average 5%.
B. The ResQPOD is an impedance threshold device that prevents unnecessary air from entering the chest during the decompression phase of CPR. When air is prevented from rushing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in
   1. Doubling of blood flow to the heart.
   2. 50% increase in blood flow to the brain.
   3. Doubling of systolic blood pressure.

II. Indications:

A. Cardiopulmonary arrest 12 years and older (medical etiology)

III. Contraindications:

A. Patients under 12 years of age
B. Cardiopulmonary arrest related to trauma

IV. Procedure:

A. Confirm absence of pulse and begin CPR immediately. Assure that chest wall recoils completely after each compression.
B. Using the ResQPOD on a facemask:
   1. Connect ResQPOD to the facemask.
   2. Connect ventilation source (BVM) to top of ResQPOD. If utilizing a mask without a bag, connect a mouthpiece.
   3. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
   4. **Do not** use the ResQPOD's timing lights during CPR utilizing a facemask for ventilation.
   5. Perform ACLS interventions as appropriate.
   6. Prepare for endotracheal intubation.
C. Using the ResQPOD on an endotracheal tube or Supraglottic Airway:
   1. Endotracheal intubation is the preferred method of managing the airway when using the ResQPOD.
   2. Place endotracheal tube or Double Lumen Airway and confirm placement. Secure the tube with a Comfit for adults and per *Pediatric Endotracheal Tube Securing Protocol*.
   3. Move the ResQPOD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
   4. Continue CPR with minimal interruptions:
      a. Provide continuous (no pauses) chest compressions (approximately 10 per light flash) and ventilate asynchronously over 1 second when light flashes (10/min).
   5. Perform ACLS interventions as appropriate.
   6. If a pulse is obtained, remove the ResQPOD and assist ventilations as needed.

V. Special Notes:

A. Always place $ETCO_2$ detector between the ResQPOD and ventilation source.
B. Administer endotracheal medications directly into endotracheal tube.
C. Do not interrupt CPR unless absolutely necessary.
D. If a pulse returns, discontinue CPR and the ResQPOD. If the patient rearrests, resume CPR with the ResQPOD.
E. Do not delay compressions if the ResQPOD is not readily available.

Sodium Bicarbonate Conversion

Paramedic – Standing Order

8.4% to 4.2%

Procedure

1. Open Sodium Bicarbonate 8.4% and assemble.
2. Take a 10ml saline flush and remove 5 ml.
3. Place a Double Luer Lock Adaptor on the Sodium Bicarbonate and Saline Flush.
4. Pull 5 ml from the Sodium Bicarbonate into the Saline Flush for a total of 10ml.
5. This provides you with 4.2% (5 mEq/10ml)

Temperature Measurement

EMT, AEMT, & Paramedic – Standing Order

Assessment/Indications
Monitoring body temperature in a patient with suspected infection, hypothermia, hyperthermia, or to assist in evaluating resuscitation efforts.

Procedure
1. If clinically appropriate, allow the patient to reach equilibrium with the surrounding environment.
2. To obtain a tympanic temperature, ensure the patient has no significant head trauma and place the thermometer into the external ear making sure not to force the probe into the ear canal. To obtain an oral temperature, ensure the patient has no oral trauma and place the device under the tongue.
3. Leave the device in place until there is indication an accurate temperature has been recorded (per the “beep” or other indicator specific to the device).
4. Record time, temperature, method (tympanic, oral or rectal), and scale (C° or F°) in Patient Care Report (PCR)
5. Refer to the **“Temperature Measurement” Procedure J - 39**

Vascular Access

AEMT & Paramedic – Standing Order

Assessment/Indications
Any patient where intravascular access is indicated, such as significant trauma or mechanism of injury, emergent or potentially emergent medical condition.

Procedure

1. Saline locks should be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the EMS professional.
2. Paramedics can use Intraosseuos access where threat to life exists as provided for in the **"Intraosseous Infusion" Procedure I - 21.**
3. Use the largest catheter bore necessary based upon the patient's condition and size of veins.
4. Select fluid & tubing. Always using aseptic technique, connect the IV tubing to the IV bag, flush IV tubing of any air bubbles. Replace cap using aseptic technique, **DO NOT** allow the end of the IV tubing end to be "exposed" and potentially contaminate the tubing.
5. Apply tourniquet, select the site, cleanse site with alcohol prep in a circular motion, allow alcohol to dry (not touching the site to prevent contamination). Perform vascular access with the IV catheter, ensure flash of blood, remove needle and dispose of properly, attach IV tubing to IV catheter securely. Ensure IV flows without side effects, secure IV site.
6. Fluid and setup choice is preferred:
   - Normal Saline or Lactated Ringers with a macro drip (10 gtt/ml) for trauma or hypovolemia.
   - Normal Saline with a macro drip (10 gtt/ml) or Saline Lock for medical conditions, and
   - Normal Saline with a micro drip (60 gtt/ml) for medication infusions.
7. Rates are preferably:

   Adult: KVO: 40 - 60 ml/hr (1 gtt/ 6 sec for a macro drip set)

   Pediatric: KVO: 30 ml/hr (1 gtt/ 12 sec for a macro drip set)
8. If shock is present:

   Adult & Pediatric: 20 ml/kg boluses repeated PRN for poor perfusion, consider additional vascular access sites.

- Before administration of IV bolus ensure the patient is not in a fluid overload situation such as CHF The preferred site for an IV is the hand followed by the forearm and antecubital and is dependent on the patient's condition and treatment modality.
- **AEMT:** In the event that an IV cannot be established, and the IV is considered critical for the care of the patient other peripheral sites may be used; feet and legs only.
- **Paraemdic**: In the event that an IV cannot be established, and the IV is considered critical for the care of the patient, other peripheral sites may be used, i.e. external jugular, feet, legs. If the patient has a central line or porta cath access and the paramedic has received in-service training on the procedure they may be accessed.
- External Jugular Veins should never be the first line attempted unless the patient has no limbs for the initial attempts. Saline Locks **SHOULD NOT** be used in External Jugular access. The Intraosseuos may be used in patients in whom IV access cannot be established **when IV access is critical**. Refer to the **"Intraosseous Infusion" Procedure I - 21.**

Intravascular Fluid Administration
Any patient having a condition that requires an IV may receive it if the Advanced EMT or Paramedic deems it necessary. Weigh the transport time against the time it would take to start an IV and make a good decision.

Trauma
Minimize on scene time. IVs are to be started while en route to the hospital unless the patient is pinned in vehicle or a prolonged scene time is unavoidable. Normal Saline or Lactated Ringers may be utilized for trauma patients. The rate is based on patient condition and shall be to maintain the patient's systolic blood pressure 80 - 90 mm Hg.

Medical
IV Normal Saline for chest pain, cardiac arrest or other medical conditions requiring possible medication administration. If no medications or fluid bolus is required, the saline lock is preferred and can always be converted into an IV line.

Special Notes

- Pediatric IV tips, refer to **"Pediatric Points"** A - 5
- Newborn/neonate scalp and umbilical vein access, refer to **"Pediatric IV Reference" J – 32**
- This includes the use of the EZ-IO "refer to **"Intraosseous Infusion Procedure" I - 21**